1. (currently amended) Procedure for the detection of stress state associated with body balance wherein the overall cardiovascular function is substantially higher than immediate physical metabolic requirements, the procedure comprising the steps of: ~~, wherein ambulatory heart beat signal is measured, characterized in that~~

- measuring an ambulatory heart beat signal,
- defining segments ~~are defined~~ from said heart beat signal with a first chosen rule for segmentation, and
- identifying and excluding at least one segment describing a physiological state with elevated cardiac activity due to physical workload and/or increased metabolic rate ~~is identified and excluded~~, if exists, and
- detecting segments other than the excluded segments ~~are detected~~ for a potential stress state, which is identified using a predetermined second chosen rule for the heart beat signal.

2. (currently amended) Procedure according to claim 1, ~~characterized in that~~ including the step of using the first chosen rule ~~is used~~ to identify state and period of one or more following: exercise, physical activity, movement, recovery from exercise and postural changes.

3. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the second chosen rule comprises a procedure to identify internally coherent segments from said heart beat signal.

4. (currently amended) Procedure according to claim 1, ~~characterized in that~~ including the step of using detected segments ~~are used~~ for correcting heart rate based oxygen- and energy consumption estimate.

5. (currently amended) Procedure according to claim 1, ~~characterized in that~~ including the step of determining an index representing a summary of the existence and level of stress, relaxation and/or resources for a chosen period of measurement~~, is determined~~.

6. (currently amended) Procedure according to claim 1, ~~characterized in that~~ including the step of measuring stress and relaxation ~~are measured~~ on the basis of heart period measurement, wherein information on the length of detected relaxation and length of detected stress is used as informative in the detection and quantification of relaxation and stress states.

7. (currently amended) Procedure according to claim 1, ~~characterized in that~~ including the step of obtaining information on the exercise, physical activity, movement, or postural changes ~~is obtained~~ from said heart beat signal and at least one separate input.

8. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the stress state is defined with the formula:

$$STRpow = E\left(\frac{HR \cdot CT}{HFpow \cdot LFpow}\right)$$

wherein *HR* denotes heart rate level, *CT* denotes inconsistencies in the frequency distribution of HRV due to changes in respiratory period, or alternatively, variability in the respiratory signal[[.]], and *HFpow* and *LFpow* denote spectral powers in the HF and LF regions of the HRV, respectively.

9. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein ~~the~~ a relaxation index is defined by the formula:

$$RLXpow = E(\frac{HFpow}{HR})$$

wherein [[is]] *HR* denotes heart rate level,[[.]] and *HFpow* denotes spectral powers in the HF regions of the HRV.

10. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein ~~the~~ a total resources index is defined by the formula:

$$Total\_resources = c_1 \cdot \frac{T_R}{T} \cdot RLXpow - c_2 \cdot \frac{T_S}{T} \cdot STRpow$$

where c_1 and c_2 are scaling constants, T is total time of the measurement, Tr is time classified as relaxation, Ts is time classified as stress, RLXpow is the intensity of relaxation state and STRpow is the intensity of stress state.

11. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the procedure is used in a wearable computer.

12. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the procedure is used in a fitness exercise equipment.

13. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the procedure is used in a PC-software.

14. (currently amended) Procedure according to claim 1, ~~characterized in that~~ wherein the procedure is used in a ECG/pulse-monitoring equipment.